APRIL, MDCCCLXIV.

THE ZOOLOGIST:

A

POPULAR MONTHLY MAGAZINE

OF

NATURAL HISTORY,

AND

JOURNAL FOR RECORDING FACTS AND ANECDOTES

RELATING TO

QUADRUPEDS, BIRDS, REPTILES, FISHES, MOLLUSKS,
INSECTS, WORMS, ZOOPHYTES, &c.

THEIR HABITS, FOOD, RETREATS, OCCASIONAL APPEARANCE,
MIGRATIONS, NESTS AND YOUNG.

No. CCLXIX.

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The late Mr. Curtis's Collection.—My attention has been called to a most careless oversight on my part, in my Annual Address to the Entomological Society, in giving the account of the contents of the Curtisian Cabinet. I took three as, on an average, being the number of examples that represented each species, and should have given the results of such division as about the number of *species* of each order contained in the collection, but they unfortunately are given as *specimens*. I have before me the memorandum made when the Collection was counted; of this I send you a copy; print it if you think it sufficiently interesting: it will be an interesting piece of information perhaps hereafter.

	No. of specimens.		No. of specimens.
Coleoptera, British .	9405	Neuroptera . . .	1165
Lepidoptera . . .	7200	Hemiptera . . .	1673
Hymenoptera . .	7715	Homoptera . . .	244
Diptera . . .	5878		

—*Frederick Smith; British Museum, March* 10, 1864.

Note of Lycæna Acis.—Having received a great number of letters from entomologists, requesting me to send them particulars as to the time of appearance, food-plant, &c., of the above insect, I beg to inform them, through the medium of the 'Zoologist,' that I have always found it between the 10th and 25th of July; but Mr. Allis, of York, is of opinion that it should be looked for earlier; he thinks it should appear about the end of June. I have never yet seen the larva; I find it in meadows near Epworth, but they are of such large extent, and the insect appearing just before the grass is ready for the mower, prevents a proper search being made for it.—*S. Hudson; Epworth.*

Notes on various Lepidoptera. By the Rev. J. Hellins, M.A.

Cidaria psitticata. Can any of your readers tell us which is the best way to obtain eggs of this species? The following unsuccessful attempt was made by my friend Mr. D'Orville. On the 16th of October, 1862, he captured one female; on the 25th, two females; on the 27th, one female; and on the 1st of November one male. All five moths were placed in a large card-box, covered with gauze, and supplied with honey for food, as well as ivy-blossoms, as long as they lasted. The male died on the 10th of November, 1862; two females on the 6th of December; and the other two females on the 27th of February, 1863; but without having deposited a single egg.

Again, on the 24th of March, 1863, Mr. D'Orville captured a female moth at the Lauristinus blossoms, and at that date it might have been expected she would have been impregnated, with her eggs well developed, but she died on the 29th of April, without laying an egg.

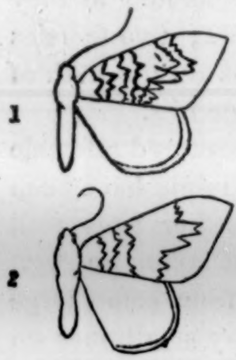
The larvæ I obtained last summer, by beating, from some large oaks, getting, after a great deal of hard work, two very small ones on the 15th of June, and two larger ones on the 10th of July; and this small catch furnished me with three varieties, *viz.* the yellowish green one, without markings; one with bright red spots down the back, and pink anal points; and another with pink legs, and pink ventral line.

Cidaria picata. The larvæ of this species, and those of C. suffumata and C. sagittata, do not follow the long slender form of the other species of the genus; C. picata and C. suffumata being more stout and fleshy, resembling in their form and habits the larvæ of several species of Melanippe; and C. sagittata, as lately described, being short and ribbed, with transverse ridges.

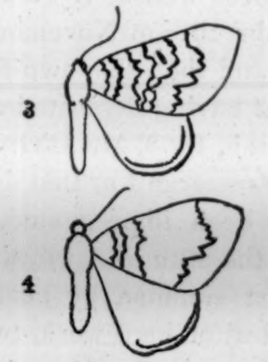
Cidaria corylata. I have now seen the larvæ of all the species of Cidaria in our British list, except C. reticulata, and find that C. corylata is the only one which has the head bifid; it is singular also in having *one* anal point; C. psitticata, C. miata, C. russata, C. immanata and C. fulvata having *two*, and the rest *none* at all. I should be glad to hear something of the variety of this larva described in Stainton's 'Manual,' from Freyer, and figured also by Hübner: I have myself taken and bred the larvæ in this locality, and last year had a great many kindly sent to me from Scotland, Yorkshire and Cheshire, but amongst them all could not find one that could be called "rosy" or pink: the ground colour in all was yellowish green of various tints, and the markings of a dark crimson-brown.

Cidaria russata and C. immanata. For the following remarks I can claim no credit to myself, having compiled them from various communications made to me by Mr. H. Doubleday; but, knowing from experience what uncertainty there exists in the minds of many entomologists concerning these two species, I thought that the information, which had been useful to myself, might be welcome to others also.

As the moths are well known in a general way, I am not going to describe them, but shall refer at once to the accompanying cuts, from drawings by Mr. Buckler, from specimens lent by Mr. Doubleday, which are designed to show the shape of the fore wings of each species, with their principal markings: and it will be noticed, first, that there is a difference in the shape of the fore wings; in C. immanata they are narrower than in C. russata, and more pointed at the tip, in some specimens becoming almost falcated; this formation of the wings causing C. immanata, when at rest, to resemble one of the Deltoides, and in that position Mr. Doubleday tells me he can recognise it at a glance.



C. immanata.



C. russata.

Again, by reference to figs. 2 and 4, it will be seen that the principal markings of the fore wings consist of two transverse bands, one narrow near the base, the other wider and occupying the centre, and both bordered with angulated lines: in the paler varieties of each, as shown in figs. 1 and 3, there is in the larger band an inner pair of lines, which in the darker varieties does not appear plainly; besides these there are other angulated lines, appearing more or less distinctly in the different varieties, but those mentioned above are the chief.

Now another point of distinction between C. immanata and C. russata is to be found in the outermost line of the broad central band; in both species this commences on the costa, at about two-thirds of the distance between the base and the tip, and runs across the wing for a little way with very small teeth, then shoots out into a large bilobed (sometimes, in C. russata, trilobed) tooth, which is followed by another not quite half as big, and lastly slants away to the inner margin, forming three more teeth not differing much in size; but the distinction is this, that in C. immanata these teeth, especially the largest of them, are more prominent and acute (Haworth's "fascia valdè producta, et utraque argutè irregulariter dentata"): in C. russata they are not so prominent, and are often rounded ("fascia externè minus producta").

The varieties of C. russata are almost endless, but those that have been named are as follows:—

The type, C. russata (Haworth's centum-notata) has the central portion of the large band white or pale gray. In concinnata of Stephens, a variety from Scotland, this central light portion of the band is narrower, and the borders of it become darker and more clearly defined.

In saturata of Stephens the whole band is of a dusky gray, whilst the tawny markings of the wing have become a dusky brown.

In perfuscata of Haworth the dark scales have so increased in number that the whole band has become nearly black, and the wing generally is so dusky that the markings lose much of their distinctness. In comma-notata of Haworth the central portion of the wing is of a tawny yellow, the lines which cross it there being of a deeper tint of the same colour.

All these varieties, except concinnata, together with intermediate ones, Mr. Doubleday has bred from the eggs of a single moth.

In C. immanata the typical form has the large band almost unicolorous and dark, the central portion being but very little lighter than the edges (Haworth's "fascia solida"); some specimens which were sent me by Mr. Hodgkinson from Westmoreland have the tawny markings of the wings also much mixed with black scales. In the variety marmorata of Haworth the central portion of the wing (as in C. russata) is white or very light gray, but the lines are all acutely angulated, as in C. immanata.

Mr. Doubleday has shown me a variety from the Shetland Isles, in which the central band is narrower than in English specimens, and altogether of one tint of rusty black, while the hind margin of the fore wings is much paler: the outer portion of the hind wings is also paler, but the line which runs across them is very much darker and more distinct: also two specimens from the Orkneys, in which the outer edges of the large band remain very dark and solid, while the central portion, especially near the costa, has become pale gray. It seems likely that very interesting varieties might be found in these islands.

The difference in the habits of the two species is as follows: C. russata is double-brooded, the first brood appearing on the wing in May and June; and from the eggs deposited then the second brood appears in August and September: the eggs laid by this second brood hatch at once, and the larvæ attain the length of half an inch before they give over feeding for the winter; in February and March they feed up, and at the end of April are in pupa for the May moths.

C. immanata has but one brood, which is on the wing in July and August; and although the eggs are deposited at once it seems they do not hatch till the spring. The great difficulty with them is that they so readily dry up; I have been disappointed in this way again and again, and Mr. Doubleday tells me that out of thousands of eggs which he has had at different times he never had one egg to produce a larva.

Whether I shall be more successful this spring I do not know, but I have the following experiment in hand. On the 11th of August, last year, I took a female of C. russata; she began to lay at once in a pill-box, and her eggs hatched on the 23rd of the same month; the larvæ are now half an inch long, and after hybernation are just beginning to feed again. On the 12th of August I took a female of C. immanata *var.* marmorata; she also began to lay at once, and I managed to make her deposit some of her eggs on growing plants of wild strawberry (*Fragaria vesca*); and some she laid on the calico covering of the glass cylinder which enclosed her: both these batches I have kept out-doors ever since, taking care to shelter them in stormy or frosty weather, and up to this date those on the plant show no signs of shrivelling, whilst of those on the calico the greater part are quite dried up. It may be these eggs require a great deal of moisture to keep them from perishing, but why they should do so more than those of C. populata, C. dotata or C. prunata, which will hatch in spring after being kept for several months in a pill-box, I cannot explain.

I cannot find a better conclusion for this long note than the following extract from one of Mr. Doubleday's letters:—"In closely allied species you will always find specimens, slight aberrations, which appear to be intermediate between the two, and it is often impossible to say to which they belong without knowing something of their history."

My eggs of Cidaria immanata, *var.* marmorata, began to hatch last Saturday, March 5.

I can now confirm Mr. Edleston's description of the young larvæ of C. immanata and C. russata (Zool. 8784), for I find that I had noted in my diary that the larvæ of C. russata, when first hatched (August 23, 1863), were *whitish*, slightly tinged with green, and I call my newly-hatched C. immanata most decidedly *yellow*.

It is worth while noticing that Mr. Edleston speaks of the *first* brood of C. russata, and I of the *second;* also that his C. immanata were the offspring of a moth of the typical colour, mine of the variety marmorata.

Cidaria silaceata. Any one who has seen this larva when at rest, and noticed its resemblance to the seed-vessels of the Epilobium, on which it feeds, will wonder much why continental authors give aspen as its food. Mr. Doubleday informs me that the species is rare on the Continent, and Guenée has taken it only in the Pyrenees.

Cidaria populata. I doubt much if this species feeds on sallow, except when reared on it in confinement. In this neighbourhood we take the moth only where the whortleberry grows, and last spring Mr. Batty, of Sheffield, sent me several of the larvæ, which he had found on that plant: they were remarkably variable in colour, being of one or two tints of green, pale brown, reddish brown, and even dark brown; but the remarkable feature in this species, and one which I have seen in no other larva but that of its congener, C. prunata, is the raised band or collar on the third segment, black or reddish, according as the ground colour of the larva is dark or light, and dotted with white.

Noctua festiva. I think it is worth recording that Mr. Buckler took a larva of this species last April, and bred the moth from it afterwards, whilst feeding on a lichen attached to some dry grass-stems: he is quite sure it was eating the lichen, as he watched it for some time before disturbing it.

Anticlea rubidata. Eggs laid end of June—beginning of July; larvæ hatched in ten or twelve days; varieties gray or reddish; full fed in August. Food in confinement Galium mollugo. Pupa in small earthern cocoon.

Anticlea badiata. Eggs laid in March; hatched in three weeks; when young all green; full-grown varieties green, with buff head or purple (Guenée's "brun-violet foncé"); full fed from end of May to beginning of July. Food wild rose. Pupa in earthern cocoon.

Anticlea derivata. Eggs laid in April and beginning of May; larva full fed end of June and beginning of July; vary in number and size of red dorsal spots, also in presence or absence of transverse red line on tenth segment. Food wild rose, specially flowers. Pupa in earthern cocoon.

Cidaria prunata. Eggs laid in July; hatched next spring, March or April; full fed end of May. Varieties green and brown. Food gooseberry and currant in gardens. Pupa spotty, in very slight and open silk cocoon, attached to food-plant.

Frost. On taking stock after the ten days' frost early in January, during which the thermometer sometimes sank to 16° below freezing point, I found that the single larva of Stilbia anomala which I had, and six or seven larvæ of the little wave, Acidalia incanaria, were lying dead in their flower-pots out-doors, apparently killed by the cold, for there was no wound to be seen on them, and up to the time of the frost they had been thriving, and were all nearly full grown: at the same time two larvæ of Cerigo cytherea, which were in a flower-pot close to the others, received no injury, but I think *they* had the wit to bury themselves under some loose earth.

J. Hellins.

Exeter, March 7, 1864.

Notes on Tineina occurring near Haslemere.—

Tinea nigripunctella. Of this scarce species I took upwards of a dozen specimens in out-houses last July. As yet, however, I cannot find the larva.

T. bistrigella. Taken flying early in June. The mine is not uncommon in the autumn.

Micropteryx Seppella. I found this species from May to July, not uncommonly, among Veronica Chamædrys, but in far greater abundance on low oak bushes, from which I have swept dozens of specimens.

M. mansuetella. I have also beaten this species out of low oak bushes several times in May and June. Possibly the larvæ of both these species will be found to feed on oak.

M. Sparmannella. Among birch bushes in April. Scarce.

Depressaria carduella. I beat two or three specimens out of thatch in September.

D. albipunctella. Beaten commonly out of thatch from August to October.

D. Chærophylli. At the same time and place as the preceding, but not so common. It comes occasionally to ivy bloom, and may also be taken in the spring after hybernation.

Gelechia sororculella. Beaten from hedges in August. I have seen it at sugar, of which delicacy G. Populella also appears very fond.

G. humeralis (Lyellella). Beaten from thatch in September. Scarce.

G. paupella. Among Inula dysenterica in August.

Macrochila fasciella. Hides among grass and low herbage in woods in June.

Œcophora flavimaculella. I found several specimens last August on flowers of Angelica sylvestris, where they look like a small edition of Tricheris mediana, which also frequents blossoms of Umbelliferæ.

Œ. flavifrontella. Beaten from hedges, and also from fir trees in June, but not commonly.

Butalis incongruella. Beaten from a hedge in a heathy place last April.

Röslerstammia Erxlebella. One specimen flying in a wood last May.

Glyphipteryx oculatella. I took a pretty good series of this species at the end of May and beginning of June. It occurs in sheltered spots in wet copses among the rushes and long grass.

Æchmia dentella. Beaten from a hedge in June.

Tinagma resplendella. I took a specimen on the wing in June. In August Mr. Stainton showed me the mine, after which I found it plentifully, and had the good fortune to breed one specimen, as recorded by Mr. Stainton in the 'Annual.'

Coriscium Brongniardella. Beaten from hedges in May and August, and from thatch in October.

Coleophora therinella. June.

C. artemisiella. May. In an open copse.

C. apicella (cacuminatella). In a marsh in June.

C. argentula. Beaten from hedges in September.

C. virgaureella. August and September. Among Solidago.

C. olivaceella. June.

C. limosæpennella. June. I found cases apparently belonging to this species on birch in the autumn.

C. fuscocuprella (fuscociliella). In a marsh in June.

Chauliodus Illigerella. Flying at sunset, in a rough field surrounded by woods, early in June.

Laverna decorella. Beaten from thatch in September, and after hybernation in April.

Elachista biatomella. Flying in abundance at sunset, in a rough field, in June and July.

E. pollinariella. Beaten from a hedge in July.

Lithocolletis Bremiella. Mines plentifully in Vicia Sepium on one wooded bank. Several specimens have already emerged in a warm room.

L. cavella. I took a specimen in May, and believe I have some of the mines.

L. ulicicolella. One specimen in a wood in May.

L. Heegeriella. Mines not scarce in corners of oak-leaves.

L. Emberizæpennella. I took one specimen last May, but cannot yet find the mine.

L. Schreberella. Mines abundant on elm bushes.

Phyllocnistis Saligna. I took a specimen in a shop-window in the town last April. How it came there I cannot pretend to guess.

Bucculatrix Cratægi. Beaten from a hedge in May.

Nepticula betulicola. May. Taken flying.

N. argentipedella. June. Taken flying. — *Charles G. Barrett; Haslemere, February* 25, 1864.

Zelleria hepariella and Z. insignipennella.—In the March number of the 'Zoologist' (Zool. 8244) Mr. M'Lachlan asks if I know the above insects. I certainly know them by name only, as being distinct; I have yet to learn who can separate them: if any one had seen the large and varied series I took last year, nearly a hundred in number, he could not have had much doubt upon the insects being one and the same: I took them from yew and juniper, in every instance, and there was no difference in their habits at all, only in time; the small ones appeared in greater numbers a week or so earlier than the larger ones, which, according to my experience, is a very usual occurrence. I find the females of moths generally later, and the males, as a natural sequence, are over earlier: my observations coincide with those of Mr. M'Lachlan, and this circumstance alone goes a great way to prove the difference is sexual. I took them varying in colour from a black-red (if I may thus express it) to a fine orange and pale yellow, together with others half yellow and half red; some with white heads, others without. I have recently seen southern specimens of Z. insignipennella: still, after all, I shall be equally glad to acknowledge my error, if it should prove that both are species liable to vary in colour, markings and size. The next point is as to when I took them *in cop.*: it was in August, when they were fresh out, and not after hybernation: I only took two hybernated specimens in March; so this still favours my impressions: and, moreover, I admit even taking them *in cop.* does not prove conclusively as much as if the larvæ were found; but it is of very rare occurrence, in a state of nature, that such accidents, as I may term cross-copulation, occur: I never before saw more than one instance, and that was of a female Hadena adusta and a male H. rectilinea, when feeding on sugar; there were several of each feeding with them when this occurred. Of course I am glad, rather than otherwise, to read the remarks of Mr. M'Lachlan: people have no need to conceal an opinion; it is only "an opinion" with us all, and I give mine to subserve truth, not interest: I am sure I shall enter into no personal strife to prove or disprove anything: I admit that I am as likely to be mistaken as any one else, and whenever I find this to be the case I will frankly own it.—*J. B. Hodgkinson; 31, Christ Church Street, Preston, March* 6, 1864.

Six Months' Collecting Lepidoptera in Westmoreland.

By J. B. Hodgkinson.

THE following brief account of my captures during the unproductive season of 1863 may probably be acceptable. Although six thousand specimens may appear a fair number to capture and set, still is it a miserable return for the labour I bestowed to get even this quantity. I have known seasons when I could have obtained as many in a month, and I might even have increased this number, but I never went out at nights, owing to rheumatism. It may be of use to some to note the district where I was located: all my captures were made within a circuit of two miles of Witherslack, with a single exception, when I took a journey to Windermere for Eupithecia tenuiata, &c. Witherslack is a village about four miles from Grange, on the other side of Morecambe Bay, and seven miles from Milnthorpe. In ordinary years it is one of the best places for Lepidoptera I ever was at, both for number of species and number of individuals. The locality appears equally rich in other orders of insects, considering how little attention I paid to them. I met with the fine Tipula, before unique, *viz*. Dale's Alpina, and above a score of Empis borealis.

The following are a few of my captures:—

Erebia blandina. In hundreds, from the 4th of August.

Thecla Betulæ. On ash, birch, &c., from the 4th of August, on road-side.

Lycæna Agestis. In plenty. They begin to assume the white spot when taken on the high ground on the face of Whitbarrow.

L. Argiolus. April and May. Rare this season on holly.

Nola cucullatella. Larvæ on sloe, and moths flying before dusk.

N. cristulalis. Odd specimens sticking on branches, trunks, &c.

Nudaria mundana. Larvæ in plenty on walls, in June.

Lithosia mesomella. In July, on the moss, one evening I had five or six in my net at once; they only flew for a short time: I expect a female was somewhere about, as they ceased flying so suddenly.

L. complanula. Larvæ on walls and juniper bushes. Moths beat out of trees, flowers, &c.

Bombyx Rubi. As usual, going pell-mell over the mosses; seldom got a stroke at them.

Ellopia fasciaria. Larvæ on Scotch fir in May; the moths in June.

Hemerophila abruptaria. Flying at dusk.

Gnophos obscurata. On rocks in August.

Nemoria viridata. In June, among Myrica Gale.

Hyria Auroraria. In June, among Myrica Gale.

Asthena luteata. In June, among nut-bushes.

Acidalia promutata. In August, on rocks.

A. immutata and A. fumata. In August, on mosses.

A. inornata. In August, by beating nut-bushes.

Cabera exanthemata. Common among nut-bushes.

Larentia salicata. Double-brooded; from April 8th to September 8th, specimens always to be found during the interval; the females are most willing layers of eggs: the second brood are smaller than the first.

Emmelesia alchemillata. Common.

E. tæniata. Thirty-six specimens, but only very few good ones; they are seldom met with fine. I got a number of eggs, but no one could rear any larvæ.

Eupithecia pulchellata. I found this handsome species in some quantity, and excessively local; the whole area was not more than ten yards square. I found no less than sixteen specimens on one lump of rock, and I had hunted for a month over miles of rocks and only found four specimens. I sent nearly a hundred eggs to several entomologists to try to rear the larvæ, but no one succeeded in bringing them up.

E. venosata. Larvæ on Silene inflata.

E. indigata. On firs.

E. virgaureata. On rocks.

E. —— new species, allied to E. minutata; three specimens.

E. tenuiata. Bred from sallow.

E. sobrinata. In hundreds. Bred.

E. satyrata. Flying freely during sunshine. Mr. Doubleday says they are like the Norwegian species, very pale.

E. abbreviata. On oaks.

E. constrictata. Thirty specimens, chiefly beat out of yews and other trees; also on rocks.

Lobophora lobulata. A hundred specimens on trunks of firs.

L. viretata. Two by mothing.

Thera coniferata. Bred a hundred and fifty specimens from larvæ taken on juniper: the moth is rarely met with.

Melanippe hastata. Only one this year; I have before taken thirty in a day.

M. galiata and M. derivata. On rocks.

Scotosia undulata. Among sallows.

Cidaria miata and C. psittacata. Both in April; hybernated.

C. marmorata. Very fine-coloured specimen.

Platypteryx lacertula. May and July; beat out and flying during sunshine.

P. Falcula. May, and 20th July; fine.

Notodonta dodonea and N. dromedarius. These I merely note as having bred two each from pupæ I had taken with me, and they were two years old; so that entomologists should not throw pupæ away because they do not emerge at the usual time.

Ceropacha flavicornis. Flying during sunshine round birch twigs, and at rest; April.

Bryophila perla. Far from any dwellings, on the rocks.

Acronycta Menyanthidis. Thirty on old fir-stumps.

A. Rumicis. Fine dark and intermediate varieties.

Miana expolita. I took a hundred specimens one afternoon from 1 P. M., which is the time they begin to fly. I was astonished when I found the head-quarters of this rapidly-flying species; it is difficult to walk or stand where it occurs, on the shingle, and I have seen nearly a dozen flying round a little tuft of grass, like so many bees, when there has been a female concealed in the grass. I took fifty males without moving from the foot of a rock: there was no chance of running, so I just knelt down, and waited their coming: I only suppose there was a female, for I never saw one, but the males kept coming, and stopped before me, and I had put no sugar there. It must have been a female that proved so attractive. When there was no sun I smoked them out.

Trachea piniperda. March, and on the 20th of May.

Tæniocampa leucographa. Eight specimens on sallows.

Dianthœcia carpophaga. Larvæ.

Hadena contigua and H. glauca. On stones, at rest.

Stilbia anomala. At rest.

Schrenkia turfosalis. On the moss, in abundance, about 7 P. M. I had to catch six or eight in my net at once, and run off the moss to box them, for the midges were so savage, getting into my eyes and ears, that I could not get to box any under such punishment, without retreating a short distance.

Rivula sericealis. Common among long grass.

Ennychia cingulalis. Flying over wild thyme flowers in June.

E. octomaculalis. Several in open places in woods.

Botys pandalis. On grassy banks.

B. terrealis. Four specimens on the rocks.

Ebulea crocealis. Four specimens on the rocks.

Eudorea truncicolalis. On rocks.

E. gracilalis, E. muralis and E. frequentalis.

Crambus falsellus. Beat out of hollies.

C. selasellus. On the marshes.

C. geniculeus and C. inquinatellus. Among dead ivy at Whitbarrow, an unusual place for the former insect, which I generally found on the coast.

Homœosoma eluviella. Three specimens.

Rodophæa marmorella. Twenty among dwarf sloes.

Sarrothripa Revayana, the variety called undulana. Beat from yew in March.

Tortrix sorbiana and T. semialbana. July.

Dichelia Grotiana. Flying swiftly during sunshine in July.

Amphysa Gerningana. Freely on a grassy bank on road-side; usually on the mosses.

A. prodromana. April; larger and finer than specimens taken here.

Leptogramma literana. Flying during sunshine in April.

Peronea Lipsiana. Several specimens flying in April.

P. hastiana, varieties. Feeding on sallow-blossoms in April.

P. aspersana. Flying freely during sunshine in August.

P. rufana. Common among dwarf brambles in a space about ten yards square; I did not meet with one anywhere else.

Penthina prælongana. Common in June.

P. ochromelana. Scarce this season.

P. sellana. Among P. prælongana.

P. ustulana. One specimen among P. prælongana.

P. marginana. Grassy swamps.

Spilonota dealbana. Common in August.

Orthotænia striana. Mixed with P. rufana.

Eriopsela fractifasciana. Several.

Cnephasia lepidana and C. musculana. Common on the wing during afternoon sun.

C. ——? A very variable insect, which appears to puzzle every one as yet, and which I propose to call "instabilana." Any one who saw the habit and flight of this insect would infer it differed from the various forms of C. subjectana. I beat a great many from old hollies, and occasionally from yews. Some are like C. perterana, others like C. octomaculana, and some females are as large as C. penziana.

C. penziana. Probably a hundred specimens on lichen rocks.

Batodes angustiorana. Common among yews, flying round the twigs during sunshine.

Pœdisca bilunana. Among birch in August.

P. occultana. Among larch in August.

P. Solandriana. Among hazel in August, in great variety.

Ephippiphora scutulana. Flying among birch in August; common in sunshine.

E. signatana. Among sloe in June and July; bred some also from sloe.

E. tetragonana. Flying in shady places in July.

Olindia ulmana. Common in July.

Semasia rufillana. Common in July, during sunshine only.

Coccyx ustomaculana. Among fir.
C. vacciniana. Among bilberry.
Retinia pinivorana. Among fir.
Stigmonota coniferana. Among fir.
Dicrorampha saturnana. Common in June.
D. Petiverana. In July.
D. acuminatana. Common in August.
D. consortana. Several in August.
Catoptria hypericana. Bred freely.
Trycheris mediana. On umbelliferous plants in July.

Choreutes scintilulana. May. This species must be double-brooded, or coming out at all times, like Xylopoda Fabriciana: I have taken them in September in swarms.

J. B. Hodgkinson.

31, Church Street, Preston,
March 6, 1864.

Cicindela campestris smelling of Roses.—Mr. Archer asks (Zool. 8972) whether any one has observed the scent of roses emitted by Cicindela campestris. In reply to this query, I may say that in this country I have never done so, although I have frequently caught them with this object in view. In Germany, however, I have captured hundreds flying about sandy places, and have never failed in noticing this fine rose smell. I am speaking of what occurred more than twenty years ago, still the fact is so fresh in my memory that there can be no doubt about it: the scent, indeed, is so powerful that it could scarcely be overlooked. Often have I wished to mention this, and am therefore glad that an opportunity has now occurred.—*George Norman; Hull, March* 1, 1864.

Occurrence of Catops colonoides of Kraatz in Britain.—See Murray's 'Monograph of the Genus Catops,' p. 77, species 55, fig. 48. It is a very distinct species, well named "colonoides," for at first sight it would generally, I think, be mistaken for a Colon, but the antennæ at once mark it as a Catops. It somewhat resembles C. anisotomoides, but is most like C. sericeus; it is, however, smaller than my smallest specimens of that species. The elytra are transversely wrinkled, and are gradually narrowed behind, as in that insect, but are not truncate, and the wrinkling is stronger and more distinct. The antennæ, too, are finer, and *much less* distinctly clubbed. The antennæ are very like those of C. anisotomoides, but are dark towards the apex, the apex itself being pale ferruginous; whereas in C. anisotomoides they are uniformly pale. From this insect it also differs in the form of the body, which is gradually contracted behind from the shoulders, whereas in C. anisotomoides it is ovate; as well as in the transverse strigation, something like that of Colenis dentipes, whereas C. anisotomoides is strongly punctate only. It is covered by a thick but fine golden pubescence, is of a dark brown colour, and has the entire facies of a Colon. I know of but one specimen, which I took at the end of March, 1861, at the Holt Forest, Hampshire, from the *débris* of fern in an old hovel, in company with a profusion of Oligota apicata, Atomaria nigripennis, Lathridius elongatus, L. nodifer, Comazus dubius, Corticaria serrata, &c., and also a specimen of Lathridius testaceus. —*J. A. Power; 52, Burton Crescent, February* 18, 1864.

Captures of rare Coleoptera.—I have recently taken a few good insects, including about fourteen specimens of the rare Catops spadiceus; a fine series of Trachys pygmæus, at Mickleham; and of Stilicus geniculatus, at Cowley. During a trip to South Devon, at Seaton, I obtained Ceuthorhynchus hispidulus; and very lately, at Esher, I took some fifty specimens of Ischnodes sanguinicollis in about two hours. I found them, with abundance of larvæ (which I am trying to breed), in an old elm tree, embedded in a mass of perfectly soft and rotten wood, which had much the appearance of old vegetable mould; in this they appeared to have undergone their change, and to be laid up in a torpid state, until the warm weather might call them forth: they were lodged deeply in the substance of the tree, where apparently very little air could penetrate: I found *none* in the semi-decayed wood nearer the surface. Sundry specimens of this insect are taken from time to time, but I have not heard of its having been found so thoroughly "at home" before. Quedius truncicola was in its company.—*Id.*

On some New or Rare British Coleoptera.

By G. R. Crotch, Esq.

University business, coupled with absence from England, have compelled me to forego sending an account of some additions to our list of Coleoptera. In the mean time certain comments have been made upon them, and, in justice to myself, I must beg you to insert this list of "Notices of New or Rare British Coleoptera."

In forwarding you a list of some species of Coleoptera new to this country, I cannot avoid alluding to Mr. Rye's paper in the 'Annual' for the current year.

No less than eighty-eight species are enumerated by him, respecting which he "regrets that it is not in his power to give further information." In the first place, I may remark that no application was made to me for information. Mr. Rye can, however, hardly be at a loss for information respecting the following species, which are enumerated in Mr. Waterhouse's 'Catalogue' as varieties, but which, in common with most recent authors, I have regarded as good species, *viz.*:—Choleva longula, *Kelln.*, Telephorus fulvicollis, *Fabr.*, *Kiesw.*, Sitones lineellus, *Gyll.*, *All.*, and Philonthus trossulus, *Nordm*, *Kraatz.*

That he should ignore the records of Liodes axillaris, *Gyll.*, *Er.*, Paromalus parallelopipedus, *Herbst*, *Mars.*, and Cerylon deplanatum, *Gyll.*, *Er.*, noticed in the 'Zoologist' (Zool. 8301), is not indeed surprising, when we see Ptilium affine, *Er.*, recorded at page 73, and ranked among the species unknown to him, at page 81. Moreover, a very slight acquaintance with entomological literature would suffice to inform any one that Heterocerus arenarius, *Ksw.*, Agabus sexualis, *Reiche*, and Ocypus Saulcyi, *Reiche*, were described from British specimens. It is to Mr. Rye himself that I am indebted for specimens of Atomaria fumata, *Er.*, or at least of a species bearing that name; and the existence of Agathidium piceum, *Er.*, and Acritus punctum, *Aubé*, in Dr. Power's collection (one sent by me from Weston), might have given him some clew to the localities of those species. Athoüs difformis, *Lac.*, will be found in Mr. Waterhouse's 'Catalogue' under that name, only he regarded it as a synonym of A. cavus, *Germ.*, which M. Caudèze states not to be the case. Tychus ibericus, *Motr.*, Homalota celata, *Er.*, and Stenus pumilus, *Er.*, will be found recorded in the 'Annual' for 1855.

Many persons, I believe, with myself will see with regret Mr. Rye's somewhat uncalled-for attack upon the arrangement adopted by me, and stigmatized by him as "foreign." He is probably unaware that it was laid down by Stephens, and perfected by our most indefatigable entomologist, Mr. T. V. Wollaston, to whose works I would refer any one for an exposition of its merits. It is, of course, however, competent for Mr. Rye to consider himself of equal authority in such matters.

I regret that, through great haste, several species were omitted in my 'Catalogue.'

Ptilium saxonicum, *Gillm.*, and P. discoideum, *Gillm.*, were, however, omitted on the authority of the Rev. A. Matthews, who considers the examples on which he introduced them to be varieties of already-recorded species.

I have now only to give the localities for some of the other Coleoptera introduced by me.

Dromius oblitus, *Boield.* This is the variety of D. sigma mentioned by Dawson as being found in the Isle of Wight. It is described by De Boieldieu as from the Pyrenees, and is regarded by Dr. Schaum as a variety of D. nigriventris, *Thoms.* (fasciatus, *Gyll.*), which is very probably the case. It has no connection with the true D. sigma.

Colymbetes (Ilybius) 6-dentatus, *Schiödte.* Hitherto confounded with C. obscurus, *Marsh.*, from which, and from all other members of the genus, it is at once distinguished by the dentate claws of the intermediate tarsi of the male. I have obtained numerous specimens at Cambridge, and have found others in several collections.

Agabus sexualis, *Reiche.* "Peterhead, Aberdeen." I am informed by Dr. Schaum that this is a variety of A. Solieri, *Aubé*, a species abundant in Iceland.

Hydnobius punctatus, *Sturm*, and H. spinipes, *Gyll.*, *Thoms.* These two species seem to be closely allied. I have about eight specimens collected in North Wales, Liverpool and Scotland, and have seen others in two or three collections. I have sent my series to M. Thomson for his verdict on the subject.

Anisotoma picea, *Panz.* This species was taken by Mr. Foxcroft in Perthshire, and was sent to Mr. Waterhouse by the Rev. A. Matthews for determination.

A. scita, *Er.* Two specimens of this insect have occurred at Monk's Wood, Hants. It is commonly represented by varieties of A. calcarata.

Cyrtusa pauxilla, *Er.* One specimen from Monk's Wood.

Olibrus liquidus, *Er.* This species, the "Stephensii, *Leach*," of our collections, has been long shown to be O. liquidus, *Er.*, by Mr. Wollaston. The O. flavicornis, *Sturm*, is a mere immaculate variety of O. bicolor, *Fabr.*, and does not occur in this country.

Telmatophilus Schönherri, *Gyll.* This species, distinguished from its congeners by its dark femora, has been universally admitted by authors. M. Kiesenwetter, who has recently described the European species of the genus, says that the sides of the thorax are also much more strongly rounded.

Aphodius borealis, *Gyll.* Specimens of the A. uliginosus, *Hardy*, were referred to this species by M. Reiche, perhaps the best authority on European Aphodii. M. Thomson, in his recent volume, refers the A. borealis, *Gyll.*, to the A. putridus, *Sturm.*

Cyphon nitidulus, *Thoms.*, and C. fuscicornis, *Thoms.* Descriptions of these new species, and of two others formed at the expense of C. variabilis, will be found in Kiesenwetter. Further investigation and a larger series will probably furnish us with one or two more. I may mention that I had types of these from M. Thomson for comparison.

Telephorus figuratus, *Mannh.*, *Muls.* Three or four specimens at Weston. Till lately I had confounded this with the T. rufa, *L.* Mulsant has pointed out the differences with his usual accuracy.

Dryophilus anobioides, *Chevr.* This is the species recorded by Mr. Waterhouse, who erroneously imagined it to be the true pusillum of Gyllenhal. The latter insect is, however, a fir-feeder, and has, I believe, been taken recently by Dr. Power.

Rhopalodontus fronticornis, *Panz.* This species at first resembles E. affine, *Gyll.*, but is distinguished by its totally different clothing. I have seen it in several collections.

Tropiphorus carinatus, ***Müll.*** This species is the Æcidii of Marsham existing in several collections, and closely resembling the T. Mercurialis.

Clythra læviuscula, *Ratz.* Exceedingly close to the C. bipunctata, *L.*, but distinguished by its hardly perceptibly punctured thorax. I have found two old specimens mixed with the common species.

Cryptocephalus Wasastjerni, *Gyll.*, *Suffr.* I have found two more examples, equally without locality, in an old collection. Its thorax is certainly more rugose than punctate, but its sculpture being visible at all, distinguishes it from all its allies. It appears to be rare, but is found in France, Germany and Sweden.

Graptodera pusilla, *Duftr.* Cambridge.

Thyamis rutila, *Ill.* Weston-super-Mare.

Plectroscelis aridula, *Gyll.* Cambridge. This and the two preceding species were named for me by M. Allard.

Blaps Chevrolatii, *Sol.* Synonymous with the B. mucronata, *Latr.*

Stenus littoralis, *Thoms.* This species, nearly allied to S. crassiventris, *Thoms.* (nigritulus, *Er.*) appears to exist in several collections. I took about sixty examples in Sweden, and have found a few at Weston. It is abundantly distinct from the S. crassiventris in form and habitat.

Trogophlæus halophilus, *Kiesw.* Found by me in salt-marshes at Weston, in some numbers, and distributed in most metropolitan collections.

The other species enumerated by me in my recent 'Catalogue,' are from the collections of Messrs. Wollaston and Janson, and will receive a more extended notice on my return from the Canaries, where I hope to do good work during the coming spring.

G. R. Crotch.

Uphill House, Weston-super-Mare,
March 10, 1864.

[I am aware there is a seeming irregularity in allowing a correspondent to reply in one periodical to a paper published in another; but I trust that in the present instance the irregularity will be in appearance only, if I reprint from the 'Annual' the whole of Mr. Rye's observations, so far as they relate to Mr. Crotch, and if I offer Mr. Rye any space he may desire in reply. I ought, however, to add, in justice to Mr. Crotch, that I entirely agree with him as to the impropriety of stigmatising any arrangement by the epithet "foreign," as though that were a fault. I am perfectly aware that it is the desire of many naturalists in this country to establish an "insular" nomenclature and arrangement entirely different from that in use on the Continent. I have often heard my friend Doubleday's arrangement of Lepidoptera condemned as "foreign," and so is my own arrangement and nomenclature of ferns. I totally repudiate all such feelings, and if I find a Guenée exhibiting a more profound knowledge of his subject than a Stephens, a Presl than a Smith, I adopt their views without any reference to their country.

Guenée and Presl, like Linneus and Cuvier, wrote for the world, why should *we* write exclusively for England? why should we reckon it a disparagement being "foreign"? Then, on the exclusion of Stylops I have a *very strong* opinion: I would as soon exclude Lucanus Cervus: yet Mr. Rye seems to approve this course, and rather to smile at its introduction by Mr. Crotch. I cannot deny myself the pleasure of expressing my admiration of, and gratitude for, Mr. Rye's most able and carefully worked-out paper in this year's 'Annual'; it is the most entomological paper we have ever had in that periodical; but it is impossible to extend this praise to his criticisms of Mr. Crotch, which are hasty, ill-considered, and, I am sorry to add, seem scarcely to be dictated by that zeal for Science which characterizes everything he had previously written. I have only to add that, after Mr. Rye's reply, the subject must be dropped, unless as regards any mere matter of fact, and I therefore beg of him not to import new matter into the discussion.—*Edward Newman.*]

Mr. G. R. Crotch, of Weston-super-Mare, and St. John's College, Cambridge, well known as an energetic and successful worker, who has done (and will, I hope, continue to do) good service by his personal communications with European coleopterists, and to whom English entomologists are, or ought to be, much obliged for the research and rapidity which he employs in investigating changes of nomenclature, has recently published a Catalogue of British Coleoptera, with an idea of establishing the continental system among us.

When I remark that in this Catalogue it is the exception, and not the rule, for *any* species to remain unaltered, either in position, value, name or parentage, it will be at once seen that the limited space at my disposal, combined with the recent date of publication of the work in question, will prevent me from giving it such a notice in detail as it deserves.

I have no doubt, however, that Mr. Crotch has ample proofs and reasons, satisfactory at least to himself, for his alterations in the nomenclature now commonly in use with us; and that he will be ready to establish them with sufficient evidence, whenever called upon to do so by any coleopterist who feels an interest in the subject; and with regard to the new species he has introduced, I certainly think it incumbent upon him to furnish all the information that he possesses about them with as little delay as possible.

Every one has a right to be guided entirely by his own judgment as to the combination of characters sufficient to distinguish a species from a variety, or as to grouping and transposing species, genera and families, but the test of correctness of opinion appears to me to consist in being able to persuade other observers to adopt one's views; it is therefore open to Mr. Crotch either himself to elevate varieties into the rank of species, and to sink species as varieties (with or without notes of interrogation), or to follow others who have done so; even when Clivina collaris and fossor, Anchomenus mœstus and viduus, and Geotrupes mutator and stercorarius, are (amongst many similar) respectively considered by him as specifically identical. Nor ought we to make any remark (except perhaps one of surprise) when the highly developed and eminently predatorial Brachelytra are degraded to the end of the list, and made to include the little abortion Claviger and the Pselaphidæ of feeble organization:—nor when the Stylopidæ are introduced into the order:—nor when the Trimera are made immediately to precede the Heteromera (apparently on account of Lycoperdina being a caricature in petto of Blaps):—nor when the Scolytidæ are removed to the beginning of the Rhynchophora, whose usual arrangement is inverted: — nor when the Corylophidæ (including Alexia) are made allies to the Anisotomidæ, with the Trychopterygidæ to follow:—nor when the Lathridiadæ are placed between Atomaria and Mycetophagus, and the non-predatorial Philhydrida with clavate antennæ (the aquatic representatives of the Clavicornes) are ranked next to the raptorial Dytiscidæ with filiform antennæ (the aquatic types of the Geodephaga).

From these examples of the foreign ideas on classification we are required to adopt, it may easily be believed (as indeed is the case) that a similar course of inversion, introduction, suppression and elevation, has been adopted by Mr. Crotch throughout his Catalogue, insomuch that there is scarcely anything left unchanged; and although credit is due to him for his intention to simplify the difficulties of conflicting nomenclature by endeavouring to place our system on the same footing as that of continental entomologists (who are nevertheless anything but unanimous on this point among themselves), yet I cannot refrain from observing it is too evident that he wishes to depreciate English work; Marsham, Kirby, Stevens and more recent authors, being deposed in favour of foreign describers with a very few exceptions throughout the Catalogue in question: and, even when thus treated, stigmatized by notes of interrogation being placed before the names of their species, as if it were impossible to determine the insects referred to by them from their descriptions and collections. I fear Mr. Crotch has simply altered the names in order to try and extinguish troublesome claimants for priority over his Teutonic favourites, and that he has not endeavoured to make out the species in question by the means at the disposal of every one *willing* to make use of them; had he done so he would not have had occasion to place queries before so many species, of which several are easy to determine.

Let the first instance in the genus Homalota (wherein the notes of interrogation placed before Stephensian species are very numerous) be taken as an example, *viz.* H. vicina.

Has Mr. Crotch placed this insect, with a prefixed query, as a synonym of H. umbonata, *Erichs.* (to which it is confessedly anterior in date), because, after using his best powers of investigation upon the descriptions in Stephens' 'Illustrations' and 'Manual,' he is not satisfied that both names refer to the same species?

Passing over the additional evidence of the types in the Stephensian Collection, which any one can examine, is not even the following abbreviated description in the 'Manual' (p. 360), combined with the sectional characters given by Stephens, sufficient for identification?

> 2807. Shining black, smooth, disc of elytra, tibiæ and tarsi reddish; antennæ with terminal joint elongate; male with a dorsal tubercle on the second segment of the abdomen, penultimate segment thickly punctured, female smooth; length one line and a half.

Of the enormous number of species known of this genus I am confident there is but this one to which the above description could possibly apply; and Mr. Crotch pays his own powers of discernment a very poor compliment by confessing, as he does, that he cannot make out his insect by it. Others, however, *have* taken the trouble to make these investigations, and have satisfied themselves of the soundness of the evidence that can be adduced, before bringing forward and supporting the Stephensian names (amongst others), but the publication of fifty catalogues adopting foreign names where they are not deserved will never alter the opinion of any one who has looked into the matter carefully, or, I trust, that of English coleopterists in general.

Mr. Crotch has very properly collected at the end of his Catalogue numerous species hitherto included in our lists, but which require further evidence before they can be considered British. It is, I believe, generally known that these names were included in the Catalogue of British Coleoptera now generally in use, with a view to directing attention to their claims, and that they would have been expunged therefrom, after a certain interval, in a future edition, provided they received no corroboration in the mean time; but there are, in addition to these, forty or fifty species entirely omitted by Mr. Crotch, probably intentionally, but still it would have been as well to have placed them amongst the appendix of doubtful claimants, since many of them are not more apocryphal than those to whom another chance of establishing themselves as British has been given.

The following, however, surely ought to have had a place as British:—

Otiorhynchus sulcatus, *Fab.*
Trachyphlæus alternans (*Schön.*), *Walton*
Polydrosus micans, *Fab.*
Rhynchites cupreus, *Linn.*
Adimonia sanguinea, *Fab.*
Mordellistena pumila, *Gyll.*
Dinoderus substriatus, *Steph.*
Telephorus ater, *Linn.*
Hylastes palliatus, *Gyll.*
Ptilium saxonicum, *Gillm.*, *Matth.*
„ discoideum, *Gillm.*

I can now only give a list of the names of the numerous species introduced as British in Mr. Crotch's list, regretting that it is not in my power to give further information about them. I may, however, remark that it is possible some of them are representatives, under other names, of species already recorded, and that the queries put by Mr. Crotch after some of the new species are, I suspect, not undeserved, but no definite opinion can be given when we have no evidence or sufficient synonyms.

Want of space also prevents me from noticing the very numerous new names brought forward as confessedly representing species already enumerated in our lists, and thereby necessarily causing confusion, which is not lessened by divers small inaccuracies, such as Strangalia attenuata, *Linn.*, appearing as a British species, and also being included in the list of doubtful insects, &c.

Dromius oblitus, *Boield.* (hitherto considered a *var.* of sigma).

Patrobus rubripennis, *Thoms.*? With respect to this insect, I may remark that I have examined a very large number of specimens of the mountain species of Patrobus from different parts of the North of England (in one instance about eighty examples kindly sent to me for that purpose by my friend Mr. Morris Young, of Paisley), and that I am pretty confident we have only one species, *viz.* P. picicornis, *Zett.* (septentrionis, *Dej.*, *Dawson*), excepting of course P. clavipes and P. excavatus. According to Thomson (Skan. Col., 1859, i. 215, 3), P. rubripennis (hitherto considered a *var.* of picicornis) should be four lines long, with the elytra red, three times longer than the thorax, their striæ distinctly punctuated, especially at the base, and the basal foveæ of the thorax sparingly punctured; whilst picicornis (id., *loc. cit.* i. 215, 4) should be from four to four and a quarter lines in length, with the elytra black and shining, four times longer than the thorax, their striæ less deep and more gently punctured, and the basal foveæ of the thorax thickly punctured. These differences in length, colour and striation in the elytra appear in several specimens examined by me, and extreme examples of either variety would answer excellently to Thomson's descriptions of his two species; but unfortunately I have also seen, and even from the same localities, other individuals wherein a transposition of the above-mentioned characters takes place: *e. g.*, there are specimens with very long elytra, the striæ of which are gently punctured and not deep, but they are red instead of black, and this evidently no result of immaturity; again, there are others with black shining elytra, but short, with deeper striæ and distinctly punctured. In fact, I have seen the delicately punctured striæ and smooth interstices gradually (by a chain of examples) merge into coarser and deep punctuation, with the interstices elevated; the lurid colour tone down to deep black, and the short elytra become long. The females generally have the elytra longer in proportion and more lurid in colour than the males. I am indeed inclined to go further than expressing my belief that we do not possess two species of Patrobus with long elytra in England, and to say that I strongly suspect Thomson has elevated a mere variety into the rank of species without sufficient reason; the only character given by him at all opposed to this supposition being the difference in punctuation of the basal foveæ of the thorax. I have, however, seen certain small diversities in the degree of punctuation of these foveæ in the specimens above mentioned, but they are quite irrespective of the other characters by which they ought to have been accompanied, according to Thomson; and, if the latter has any weakness (for his work is most admirable, and exhibits an originality and keenness of discernment seldom to be met with) it is his tendency to attach an undue importance to trifling differences in sculpture or colour.

Colymbetes sexdentatus, *Schiodte.*
Agabus sexualis, *Reiche.*
Heterocerus arenarius, *Kiesnw.*
Choleva longula, *Kelln.* (hitherto considered a *var.* of tristis).
    pilicornis, Thoms.
Colon Viennense, *Herbst.*
  „ serripes, *Sahlb.*
    fem. *fusculum*, Er.
  „ Zebei, *Kr.*
  „ rufescens, *Kr.*
  „ angulare, *Er.*
Hydnobius punctatus, *Sturm.*
  „ spinipes, *Gyll.*, *Thoms.*
Anisotoma Triepkii, *Schm.*
  „ picea, *Ill.*
  „ Silesiaca, *Kr.*
    ? *arctica*, Th.
  „ rubiginosa, *Schm.* (re-introduced).
  „ scita, *Er.*
Cyrtusa pauxilla, *Schm.*
Agaricophagus conformis, *Er.*
Liodes axillaris, *Gyll.*
Agathidium piceum, *Er.*
Ptilium affine, *Er.* (addenda).
Olibrus liquidus, *Er.* (This is no doubt the insect at present known in collections as O. flavicornis, *Sturm.*)
Cerylon deplanatum, *Gyll.* ?
Telmatophilus Schönherri, *Gyll.* (*var.* Typhæ ?).
Cryptophagus umbratus, *Er.*
  „ grandis, *Kr.*
  „ fuscicornis, *Sturm.*
  „ subdepressus, *Gyll.*
Paramecosma Abietis, *Payk.*
  „ pilosulum, *Er.*
Atomaria fumata, *Er.*
  „ rhenana, *Ktz.*
Lathridius assimilis, *Mannh.*
Paromalus parallelopipedus, *Herbst.*
Acritus punctum, *Aubé.*

Aphodius borealis, *Gyll.*
uliginosus, Hardy.

Cryptohypnus 4-guttatus, *Lap.*
tetragraphus, Germ.

Athoüs difformis, *Lac.*
campylöides, Newm.

Agriotes pallidulus, *Ill.?* (This is, I presume, the "4* sp——," Wat. Cat., Ent. Ann. 1863, p. 96, 86).

Cyphon nitidulus, *Thoms.*
„ fuscicornis, *Thoms.*

Telephorus figuratus, *Mann.*
„ fulvicollis, *Fab.*
nivalis, Germ.
„ femoralis, *Br.?* (*Tel.* 21* sp. ——? Wat. Cat., Ent. An. 1863, p. 97, 87?).

Dryophilus anobiöides, *Chevr.*
compressicornis, Muls.

Rhopalodontus fronticornis, *Panz.*

Hylastes angustatus, *Herbst.*

Bagoüs subcarinatus, *Schön.* (Mr. Crotch has just informed me that this ought to be considered a synonym of limosus, *Schön.*, which I have always understood to be the case).

Tropiphorus carinatus, *Mull.*

Sitonus lineëllus, *Schön.* (hitherto considered a *var.* of tibialis).

Bruchus Cisti, *Payk.* (Mr. Crotch informs me that this is to be considered a synonym of ater, *Marsh.* (villosus, *Fab.*), to which it has always been referred, and that it was erroneously ranked as a separate species in his Catalogue.)

Clythra lœviuscula, *Ratz.*

Cryptocephalus gracilis, *Fab.*

Graptodera pusilla, *Dufts.*
Helianthemi, Allard.

Aphthona cærulea, *Payk.*
Pseudacori, Marsh. (This synonym is not correct; Marsham's insect is violacea, *Ent. Heft.*)

Thyamis nigra, *Ent. Heft.*
„ brunnea, *Redt.*
lurida, v.? All.
„ lateralis, *Ill.* (26 sp——? Wat. Cat.?).
„ rutila, *Ill.*
„ canescens, *Foud.?*

Thyamis ferruginea, *Foud.*

Plectroscelis aridula, *Gyll.*

Blaps Chevrolatii, *Solier.*

Uloma culinaris, *Linn.* (mentioned in Mr. Crotch's preface as naturalized).

Tychus ibericus, *Motsch.*

dichroüs, Schmidt.

Actecharis Readingii, *Jans. MSS.*

Myrmedonia similis, *Mark.* (Mr. Crotch informs me this was erroneously inserted as British.)

Callidera nigrita, *Mann.* ? (Calodera, 1 *nov. sp.* ? Wat. Cat. ?).

Oxypoda riparia, *Fairm.*

„ recondita, *Ktz.*

„ amœna, *Fairm.*

flavicornis, Ktz.

„ helvola, *Er.*

? *pallidula*, Sahlb. (Hitherto considered the same as annularis, *Sahlb.*)

Homalota valida, *Ktz.*

celata, Erichs.

Hypocyptus rufipes, *Ktz.*

„ seminulum, *Er.*

Tachyporus abdominalis, *Er.*

Quedius modestus, *Ktz.* ?

Ocypus Saulcyi, *Reiche.*

Philonthus nitidulus, *Grav.* (Mr. Crotch informs me this species was erroneously inserted by him as British.)

„ trossulus, *Nordm.* ?

Pæderus longipennis, *Er.* (Mr. Crotch informs me this was intended to be placed as a synonym of fuscipes, *Curt.*)

Stenus scrutator, *Er.*

„ sylvester, *Er.*

„ pumilio, *Er.*

„ littoralis, *Thoms.*

Trogophlœus halophilus, *Kiesenw.*

E. C. RYE.

284, King's Road, Chelsea, S.W.
October, 1863.

Proceedings of Societies.

ENTOMOLOGICAL SOCIETY.

March 7, 1864.—FREDERICK SMITH, Esq., Member of the Council, in the chair.

Special Meeting.—A Special Meeting was held, pursuant to notice, for the purpose of electing a President in the place of Mr. Stainton, who declined to accept the office.

The Chairman appointed Messrs. Haward and Sharp to be Scrutineers. A ballot was then held, and Francis P. Pascoe, Esq., F.L.S., &c., was declared to be duly elected President for 1864.

Ordinary Meeting.—The following donations were announced, and thanks voted to the donors:—

Donations to the Library.

'Académie Royale des Sciences, des Lettres et des Beaux-Arts de Belgique: Bulletins des Séances de la Classe des Sciences, Année 1862;' 'Annuaire 1863;' presented by the Academy. 'Proceedings of the Royal Society,' No. 60; by the Society. 'Proceedings of the Natural History Society of Dublin,' Vol. iv. Part 1; by the Society. 'Proceedings of the Literary and Philosophical Society of Liverpool during the fifty-second Session, 1862-63,' No. xvii.; by the Society. 'Sitzungsberichte der Königl. bayer. Akademie der Wissenschaften zu München,' 1863, II. Heft 2 & 3; by the Academy. 'Notes on the Indian Bombycidæ,' by Capt. Thomas Hutton; by the Author. 'The Classification of Animals, based on the Principle of Cephalization; Part 2, On Fossil Insects from the Carboniferous Formation in Illinois;' by James D. Dana; by the Author. 'Chilonidarum et Crambidarum Genera et Species,' Scripsit P. C. Zeller; by the Author. 'The Intellectual Observer,' Nos. 25 and 26; by the Publishers. 'The Zoologist' for March; by the Editor. 'The Transactions of the Linnean Society of London,' Vol. xxiv. Part 2; by the Society. 'The Journal of the Society of Arts' for February; by the Society. 'The Athenæum' for February; by the Editor. 'The Reader' for February; by the Editor. 'Verhandlungen des Naturforschenden Vereines in Brünn,' Band. I. 1862; by the Society. 'Wiener Entomologische Monatschrift,' Vol. iii. Nos. 1—12; by M. Lederer.

The following additions by purchase were also announced:—'Fauna Austriaca: Die Fliegen (Diptera),' von J. Rudolph Schiner. 'Berichte über die Wissenschaftlichen Leistungen im Gebiete der Entomologie,' von Dr. A. Gerstaecker, 1853—1861; Berlin, 1855—1863.

Election of Member.

R. W. Fereday, Esq., of Oakley Station, Christ Church, Canterbury, New Zealand, was ballotted for and elected a Corresponding Member.

Exhibitions, &c.

Mr. Waterhouse exhibited two species of Aleochara hitherto unrecorded as British:—

1. A. procera, *Kraatz*, *Ins. Deutschl.* p. 97 = Ocalea procera, *Erichs. Gen. et Sp. Staph.* p. 61. Found at Reigate by Mr. Linnell.

2. A. fumata, *Erichs. lib. cit.* p. 166, *Kraatz, lib. cit.* p. 93. Found in Scotland by Mr. Morris Young and by Mr. Waterhouse himself.

Mr. Waterhouse also exhibited specimens of Aleochara brunneipennis, *Kraatz*, = sanguinea, *Kirby*, and called attention to the fact that that species was identical with the A. mœrens, *Thoms.*, as he had ascertained both from the description and by comparison with a specimen received from Thomson by Mr. Crotch.

Prof. Westwood exhibited the sexes of Ramphorhina Petersiana, a splendid Goliath beetle, brought from the Zambesi by the Rev. H. Rowley, the female being then for the first time exhibited; also several species of Lepidoptera from the Zambesi, amongst which was a new species of Charaxes, which considerably resembled an Argynnis, and read descriptions of this and several new species of Coleoptera.

Prof. Westwood also exhibited larvæ of Endrosis fenestrella, which had been sent to him by a correspondent, and which were accused of having made numerous holes in a carpet which had been laid down new in September or October last: on taking up the carpet, the larvæ were found on or in the interstices between the boards of the floor, but the larva-cases did not appear to be formed of particles of the carpet.

Mr. Stainton remarked that the only evidence against the Endrosis larvæ was their propinquity to the carpet; he had never hitherto detected that species in the commission of similar injury.

Mr. Bond, however, had no doubt that they would attack carpets; he himself had once had a coat destroyed by them.

Prof. Westwood said that another correspondent had called his attention to the injury done to the leather binding of books by Ptinus hololeucus, a well-known beetle, which he believed to have been imported into this country from Russia some thirty years ago in a cargo of leather, and which was now thoroughly naturalized. This also was a case of first conviction, for he had not before met with any instance of this insect doing actual harm.*

Mr. S. Stevens exhibited a collection of Coleoptera and Lepidoptera from Old Calabar.

Mr. S. Stevens also read a letter from Mr. John Young, on the subject of the swarms of small ants found in his house in Guildford Street; see 'Proceedings' for October, 1863. Mr. Young stated that he had removed the pest by the use of Dumont's Insect-destroying Powder, by puffing the powder into the crevices from which the ants issued, and laying it on the ledges, &c., on which they appeared.

Mr. Waterhouse exhibited several portions of nests of bees, wasps and hornets, in illustration of the paper mentioned below.

Papers read.

Mr. Baly read a paper entitled "A Catalogue of Cassididæ collected by Mr. A. R. Wallace in the Eastern Archipelago, with Descriptions of the New Species."

The Secretary read the first part of a paper, by Mr. Pascoe, entitled "Longicornia Malayana; or, a Descriptive Catalogue of the Species of the three Longicorn Families, Lamiidæ, Cerambycidæ and Prionidæ, collected by Mr. A. R. Wallace in the Malay Archipelago."

Mr. Waterhouse read a paper "On the formation of the Cells of Bees," in which the Author defended what may be termed the circular theory of formation, which was first promulgated by himself nearly thirty years previously.

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* See 'Journal of Proceedings' for September, 1862; Zool. 8218.

A discussion ensued, in which Mr. Bates and Prof. Westwood took part: Mr. Baly mentioned some observations made by himself on the formation of the nests of certain wasps, as corroborating Mr. Waterhouse's view; and Mr. A. R. Wallace expressed his concurrence in the theory. Mr. Frederick Smith, however, was not of the same opinion, and promised to bring before the Society, at its next Meeting, certain facts which, to his mind, were conclusive against the circular theory.—*J. W. D.*

Erratum in 'Zoologist' for January, 1864.—Zool. 8897, lines 7 and 15 from bottom, for OGCOCEPHALUS read CEPHALONCUS.

"*The Boring Snail of the Bois-des-Roches.*" By the Rev. ALFRED MERLE NORMAN, M.A.

THE paragraph thus headed in the 'Zoologist' (Zool. 8932), and extracted from the 'Field,' and on which Mr. Newman requests my opinion, does not appear to contain any original observations by Mr. H. J. B. Hancock, but is a brief abstract of a long and elaborate treatise on the subject published by M. Bouchard-Chatereaux. The Memoir will be found in the 'Annales des Sciences Naturelles,' 4e serie Zoologie, vol. xvi. 1861, p. 197—218, under the title of "Observations sur les Hélices saxicaves des Boulonnais." Mr. Hancock has latinized Hélices saxicaves into "Helix saxicava." There is no such species. The boring-snail of the Bois-des-Roches is nothing more nor less than our well-known Helix hortensis.

It is not my wish on the present occasion to express any opinion upon the means by which the galleries tenanted by the Helices are excavated by the mollusks. Those who are interested in the subject, by reading M. Bouchard-Chatereaux's paper will be able to weigh the arguments for themselves and adopt or reject the chemical theory, which is so ably maintained by the author.

There can, however, scarcely be a doubt but that the perforations are the work of the snails themselves. M. Bouchard-Chatereaux, I think, clearly proves this, and the plate which he gives illustrative of the perforations presents features so peculiar that they could scarcely be produced by accident or weather. Nor is the boring of the rocks of the Bois-des-Roches a solitary instance of the phenomenon. M. Bouchard-Chatereaux quotes a statement made before the French Academy of Sciences, in 1854, that M. Constant Prévost had given a description twenty-five years before of the calcareous rocks of Monte Pelegrino, in Sicily,—crystalline rocks having the hardness of marble,—which he found traversed in all directions by numerous channels, generally communicating with each other. In each excavation a Helix was lodged, and M. Prévost did not hesitate to attribute to the snails the work of excavating the galleries.

But the credit of first noticing excavations of this nature must be given to a countryman of our own. In 1820, the first volume of the Rev. John Hodgson's 'History of Northumberland' was published, and, at p. 193 of the second part, there will be found the following passage:—"On a sunny bank, called the Ferny-breay, on the north of the way to Wallington, and just within the Croft-gate on the east side of Whelpington, a stratum of limestone is here and there seen in gray projecting masses, the under surface of which is bored upwards with cylindrical holes, which are from a line to four inches deep, and tenanted, especially in winter, by the banded and yellow varieties of the Helix nemoralis. The Limax, while it occupies these cavities during the summer, has its fleshy longitudinal disk protruded out of the shell, and coiled nearly in a circle on the surface of the stone, the summit of its shell hanging downwards; and in this position it probably elaborates its den, in the same manner that some of the Pholades work their way into clay or wood, or, by a slow but constant process, sink and enlarge their cells in the hardest stones."

On the 19th of May, 1841, a paper was read by Dr. Buckland, before the Geological Society, "On the agency of Land Snails in corroding and making deep excavations in compact Limestone Rocks." Dr. Buckland, in this paper, first referred to the character of the excavations at the Bois-des-Roches, which he had examined during the Meeting of the Geological Society of France at Boulogne, in September, 1839. He then went on to describe perforations in the carboniferous limestone on which the Castle at Tenby stands, and assigns them as the work of the "same species of Helix as that which had formed the cavities in the limestone near Boulogne, and he found within them specimens of the dead shells as well as the living. The mode of operation by which the excavations were made, he conceived, was the same as that by which the common limpet (*P. vulgata*) corrodes a socket in calcareous rocks, and he was of opinion that the corrosion is due to the action of some acid secreted by the body of the limpet or Helix."—('Annals of Natural History,' 1842). It may be mentioned that at the time Dr. Buckland wrote this paper M. Bouchard-Chatereaux was of opinion that the mode of perforation was mechanical. It was not until a subsequent period that he adopted the chemical theory here advanced by Dr. Buckland.

In conclusion, I would call attention to certain points of resemblance in the accounts we have of the four localities presenting these remarkable perforations: *first*, that in all the instances the perforated rocks are calcareous—a limestone; *secondly*, that the excavations are never on the upper surface of the rocks, as would be the case were they the effect of weather, but are either inwards from the edge, or upwards from the under surface of projecting ledges; *thirdly*, that such positions offer protection to the snails from the weather, which habitations on the upper surface of the rock would not; *fourthly*, that the channels are always described as of considerable depth, of unequal diameter in different parts, as tortuous, and as frequently confluent; *fifthly*, that they are tenanted by Helix hortensis, which is presumed to be the excavator.

This last statement requires some explanation: M. Bouchard-Chatereaux tells us that the boring-snail of the Bois-des-Roches is Helix hortensis: Dr. Buckland states that the Tenby snail is the same as that of the last locality, but when speaking of the Boulogne snail he calls it Helix aspersa. In this he is clearly mistaken. Perhaps some correspondent of the 'Zoologist' may have the opportunity of examining the Tenby burrows, and telling us whether or not they are occupied by the "same species of Helix as that which forms the cavities in the limestone near Boulogne," namely, H. hortensis. Mr. Hodgson speaks of the Whelpington burrower as Helix nemoralis, a title which, in the opinion of many conchologists, includes H. hortensis as a variety, and with this latitude the name may be employed by Mr. Hodgson. The name of the Sicilian snail is not given by M. Prévost.

Mr. Jeffreys, in his recently published 'British Conchology,' ascribes to Helix aspersa the boring faculty, doubtless relying on the statement of Dr. Buckland. The evidence, however, of M. Bouchard-Chatereaux must be considered the more trustworthy.

As bearing upon this subject, it may be mentioned that Mr. Jeffreys states that, according to M. Bonnafaux, the Helix aspersa has been known to perforate birds' eggs in deserted nests, in order to feed on their contents.

ALFRED MERLE NORMAN.

Sedgefield, February 20, 1864..

On the External Parasites of Fish.—May I ask the co-operation of the readers of the 'Zoologist' in enabling us to arrive at a more accurate knowledge of the parasites which are to be found upon our marine and fresh-water fish? I am engaged in the investigation of both foreign and British species, and shall feel greatly obliged for any materials that may be placed in my hands. Fish-parasites, which are very numerous, belong to two great classes:—*internal* parasites, which attack the stomach, liver and other organs of the host, and belong to Entozoa, a section of the Annelids; and *external* parasites, which constitute the Cormostomata of Dana (the Epizoa of Owen), a remarkable and abnormal division of the Crustacea. These last parasitic Crustacea form two divisions; the one lives upon the surface of the fish, can move from place to place, anchor itself at will by means of its hook-formed, prehensile antennæ, or even occasionally leave the fish, and swim freely in the water. The species of this division are well known to fishermen as "fish-lice," and almost any cod or fresh-run salmon will afford examples of them. The other division includes sedentary parasites, having the head frequently deeply buried in the tissues of their victim, and can only be removed by careful excision. They have no power of locomotion, indeed often almost the whole of the external organs are in a rudimentary state, and the animals assume the most extraordinary and uncouth forms. These sedentary parasites should be sought for on the gills, the eyes, the roof of the mouth, the vent, the fins, and, in the case of the skates, in the nostrils. The gills are the parts chiefly affected, but among the dog-fish and sharks the vent is a favourite habitat. Little has been done as yet in Great Britain among these parasites. The only work that treats of them is Dr. Baird's 'History of British Entomostraca.' My own collection now includes nearly double the number of species there described, and for a considerable number of these I am indebted to the activity of my collector, Mr. Laughrin, of Polperro, and to the kind co-operation of Mr. Edward, of Banff. If those who have the means of examining rare fish taken on the coast would look after the parasites upon them, the result would frequently be not only the recording of the occurrence of the fish itself, but also the more important discovery of one, two or three animals new to the British Fauna. I am induced to make this appeal to the attention of ichthyologists by the record of the capture of the sword-fish at Plymouth, a host which sustains two parasites which have not hitherto been recorded in our seas. The parasitic Crustacea vary from a quarter of an inch to two inches in length. All that is necessary for their preservation is careful removal, by excision if necessary, from the body of the fish, and immersion in spirits of wine.—*Alfred Merle Norman; Sedgefield, Ferry Hill, February* 20, 1864.

Stoat and Moorhen.—Reading Mr. Harting's anecdote of the weasel (Zool. 8945) has recalled to my mind a scene which I witnessed on the 23rd of November, 1862, an account of which, I think, will be interesting to the readers of the 'Zoologist.' It was a still, sunny morning, and I was taking a quiet stroll by the side of a pond, when my attention was attracted by a moorhen rushing at a tremendous pace along the bottom of a hedge, and while I was wondering what should have been the cause of this sudden movement on the part of the moorhen I heard a second rustling in the hedge, and on looking round I caught sight of a stoat scampering along at full pace in the track of the moorhen, which latter had in the mean time stopped in a lot of sedge. I watched the stoat until he came up to the sedge, expecting every moment to see the moorhen start again, but a rustle, followed by a continued fluttering, told me that it was all up with him. I waited until the fluttering had ceased, and then walked round to the spot, where I found the moorhen dead, with its head drawn into a hole in the ground. I found on examination a wound in the head, from which the blood had been sucked, also a wound in one thigh, and I suspect that the stoat first seized it by that part, and afterwards changed its hold to the head. It seems rather odd that the moorhen did not use its wings as a means of escape; perhaps fright may partly account for this, but I have noticed that, when disturbed, they always prefer to hide rather than take flight. I brought the moorhen home; it was a bird of the year, but full-grown.—*W. Jeffery, jun.; Ratham, Chichester, March* 5, 1864.

Otter at Pagham Harbour.—On the 2nd instant, a fine male otter was killed in Pagham Harbour, after having been shot at, I am told, as many as thirty times: it was at last wounded with a bullet, which enabled some men in the coast-guard service to knock it at head with their oars. The weight of it is 17½ lbs., and its length, including the tail, is but one inch less than four feet. It is being preserved for the Chichester Museum.—*Id.*

Badger near Melton.—A fine male specimen of the badger (*Meles vulgaris*) was captured near Melton, Norfolk, on Thursday, the 18th inst.—*T. E. Gunn; Norwich, February* 22, 1864.

Supposed Old English Rat.—I observe that, in the February number of the 'Zoologist' (Zool. 8945), Mr. Norman expresses doubts as to the identity of the rat killed near Beverley with the Old English rat, now so nearly extinct. He bases his incredulity on the supposition that, because the rat happened to have been killed in a barge on the River Hull, it must have been one of a foreign species, imported with a foreign cargo, *viâ* Hull, &c. This supposition is altogether far from the mark: *first*, then, the barge in question, on which the rat was killed, never touched at Hull on her voyage, and does not trade with that port: *secondly*, the cargo on the barge at the time of the capture was not a foreign one, but coals shipped at Wakefield, and brought from thence direct to Hull Bridge: *thirdly*, the rat itself has a very faint resemblance in some particulars to the "gaunt," large-eared, long-tailed foreign rat, which Mr. Norman correctly states is frequently met with on ship-board in the Hull Docks. I am perfectly familiar with these rats; indeed I have seen and examined dozens of them: any Hull rat-catcher could supply a considerable number of them on a very short notice: these rats are of small size, when fully grown seldom exceeding one-third to one-half the dimensions of the ordinary Norwegian rat: they are, moreover, of a very peculiar colour, *viz.* mousey, sooty, or slaty black, and of a uniform colour throughout; their fur is peculiarly soft, and devoid of the harshness caused by the longer outer hairs of the common rat; in texture it more resembles the fur of the mole or of a very young rat of the ordinary species: albinoes of this species are not unfrequently met with. The rat in question is certainly not one of this species, being larger and coarser in its fur, besides the colour being different, both in shade and uniformity. I have compared it with an undoubted specimen of the Old English rat, caught at Knowsley, and the two animals appear to be identical. Should it be more satisfactory to the Editor of the 'Zoologist' or its readers, I should be most happy to forward the specimen under discussion for Mr. Newman's opinion and decision as to its species.—*W. W. Boulton; Beverley, March* 8, 1864.

Occurrence of the Bank Vole in some numbers in Derbyshire.—Last winter I had the pleasure of recording the occurrence of six specimens of the bank vole (*Arvicola pratensis*) at Calke Abbey, Derbyshire. During the last twelve months more than thirty specimens have been caught in traps set in the gardens and pleasure-grounds of the Abbey. The traps were baited with meat, and were placed at the foot of the garden-walls and at the edges of ornamental rock-work. I am convinced that this vole is far commoner than is generally supposed.—*H. Harpur Crewe; The Rectory, Drayton-Beauchamp, Tring, March* 12, 1864.

On the Gizzard or Stomach of Birds. By W. W. Boulton, Esq.

Since ascertaining that the bittern (*Ardea stellaris*) digested its food by the aid of a true stomach supplied with acrid solvents (Zool. 8959), instead of mechanically grinding it by means of a gizzard and foreign substances, such as stones, grit, &c., I have carefully observed the stomach of every bird that has come under my notice. The result of my investigations leads me to suppose that there are no less than three different forms or types of stomach amongst birds.

1. I find birds with a true stomach, similar in all essential parts and powers to the same organ in animals, and digesting its contents by the secretion and action of a natural solvent. Of this class are the owl, bittern, &c., birds which prey upon small animals, fish and insects.

2. Birds with a true gizzard or stomach supplied with such an arrangement of parts and powers that the food is thereby ground mechanically to the consistency required for the purposes of assimilation, and is not perceptibly acted upon or softened by a natural solvent. Of this class are the pochard, domestic fowl and small hard-billed birds, &c., birds which live upon vegetable matters, seeds, fruits, and a varied or mixed diet.

3. Birds with a stomach which appears to be compounded of the other two forms; in fact, with a stomach partly supplied with actual digestive powers (literally and strictly) and partly with grinding or triturating powers. Of this class are the goosander, smew, &c.

In all birds the œsophagus is more or less dilated at its lower end where it opens into the gizzard or stomach. This dilatation is called the "ventriculus succenturiatus," and in the case of the class of birds to which I am at present referring, it appears to serve the purposes of a digesting stomach more or less perfectly. It is supplied with a mucous membrane and glands, whose fluids possess an undoubted power of acting as solvents of the ingesta retained in this portion of the alimentary canal. Thus, a fish received into this greatly dilated ventriculus succenturiatus would have become so far softened during the period of its retention therein, that the scales would slip off on the slightest touch, and the whole tissues of the fish would have become so far altered in consistency as to be readily crushed into a pulp by the representative of a gizzard into which it enters on leaving the ventriculus succenturiatus. I say "representative of a gizzard," because this organ is in every respect much feebler than a true gizzard in proportion to the size of the bird; indeed it appears to be rather an appendage to the ventriculus succenturiatus, in the form of a second stomach, than an independent organ. It is supplied with powerful muscles, which embrace the organ from certain fixed points, and which crush between them the contents of the organ. It is further supplied on its interior surfaces with a thickened and corrugated membrane, and small stones are also found in its cavity, which had been swallowed by the bird to assist the organ in its grinding powers. The muscles are, however, mere representatives of those immensely developed muscles which render the ordinary true gizzard so irresistible in its grinding power. The thickened and corrugated lining membrane of the organ, too, is but a feeble type of those hardened fibrous plates which, in the true gizzard, forcibly rubbed together by vast muscular contraction, act as the mill-stones on the grain in an ordinary mill. The capacity also of the organ is comparatively and relatively small, compared with the capacity of an ordinary true gizzard.

This comparative inferiority in power and capacity is due, I conceive, to the fact that it has only a secondary part to play in the process of digestion, nor has it the food to retain for so long a period as an ordinary gizzard, whose office it is to keep up a sufficient supply of softened aliment for the nutrition of the bird, and that by its own unaided powers. It is a very interesting fact, however, and this wonderful arrangement of parts, so peculiarly fitted to the habits and requirements of those birds in which we find it, is worthy of note.

In giving examples of birds occurring in each of the three classes I have spoken of, those named are selected, almost at random, from the unavoidably restricted list of birds whose stomachs I have actually examined, but which are nevertheless excellent illustrations of the peculiarities I have noted.

The question then arises, why these various arrangements of stomach and varied powers of digestion in the great family of birds? May not the explanation be—

1. That those birds in which a true stomach is found are birds feeding on animals, birds, fishes and insects, either sufficiently small to be digested *in toto*, bones and all, by the solvent powers of the organ, or birds which have the very peculiar power of rejecting the bones, hair, feathers, &c., in a mass subsequently to the removal of

the fleshy portions of the animal, bird or fish, by the solvent powers of the digestive secretion.

2. That those birds in which a true gizzard is found are birds feeding upon grain, seeds, vegetable matters, and a mixed dietary, which could never be digested by the solvent powers of a true stomach, and which positively requires the mechanical crushing, pulping process of Nature's mill, with its motive power concentrated in the enormously developed muscles, and its mill-stones on which these act, represented by the cartilaginous plates between which the food is speedily rendered fit for assimilation.

3. That those birds in which a double or compound stomach is found, possessing the solvent powers of a true stomach, together with the grinding powers of a true gizzard, are birds feeding on a comparatively bulky prey of flesh or fish, and which assimilate the bones, &c., as well as the softer portions of their victim. This is the case with the goosander, smew and diver, and most probably with all the members of these families.

W. W. BOULTON.

Beverley, March 8, 1864.

Birds and Plate-Glass.—I fancy that the introduction of plate-glass into our windows must have been very fatal to the birds. Since my residence here many birds of many kinds have come to a sudden and untimely death by a flight against the glass. At first this destruction was quite distressing, but I am happy to say that each year it is becoming less. I suppose that they (the survivors) have gained experience. Plate-glass alone could have withstood the impetus with which some have met their fate, coming with a bang against the pane, like the report of a pistol. Amongst the victims I may mention a few: a sparrowhawk, two partridges (which being in season did not grieve me much), a misletoe and many common thrushes, chaffinches, two nightingales, and many other species; and a few days ago, during a severe frost, and in the dusk of the evening, seeking shelter from the cold, a golden-crested wren flew against the window, but was fortunately only stunned: I brought it in, and, before it had quite recovered, placed it in a small covered Japan basket upon a bed of rose-leaves. It never moved, and, fearing it might be dead, I carried the basket across the room some hours afterwards, and though the cover was removed in the full glare of the light the beautiful thing was not disturbed: it was asleep, and one round ball of feathers, the head and neck invisible. Upon coming into the room next morning I found it all alive and well, and gave it its liberty. Birds when asleep must fall an easy prey to their enemies; they are very deaf, and, except some (which sleep, as they say Bristolians do, with one eye open), blind to approaching danger.— —*W. C. Hewitson; Oatlands, February* 22, 1864.

Whitetailed Eagle near Wymondham.—An eagle, supposed to be a young specimen of Falco albicilla, was observed for several days in the neighbourhood of Great Melton, near Wymondham, about the middle of November last.—*T. E. Gunn; Norwich, February* 24, 1864.

Whitetailed Eagle in Savernake Forest.—During the past week a specimen of the whitetailed eagle had been observed in the neighbourhood of this place, and in vain were traps set to take it. However, on Monday, the 1st of March, Mr. Haymes, one of the Marquis of Ailesbury's gamekeepers, managed to get within shot of the bird, in the Bedwyn Brails, one of the preserves of his lordship, and brought it to the ground. The bird has been sent to Mr. Ward, of Vere Street, for preservation.—*W. H. Rowland; Hungerford, Berkshire.*

Tengmalm's Owl captured at Flamborough.—A very splendid specimen of Tengmalm's owl (*Strix Tengmalmi*) was captured at Flamborough, on the East coast of Yorkshire, on the 1st of October, 1863. I had not the opportunity of dissecting it, so cannot be certain of the sex; I believe, however, from its size, &c., that it was a mature female. It was captured in the day-time by Robert Barkley, of Flamborough, who ran it down in a field belonging to Mr. Preston, of the same place, the bird being dazzled by the light. This species is peculiarly sensitive to light, and is thereby rendered almost helpless, if disturbed in the day-time. The specimen was taken by the man who captured it to Mr. Bailey, of Flamborough, who is known to take an interest in Natural History, and from whom I obtained the particulars of the capture: he skinned and set it up himself. I have seen the bird, which is very perfect and in exquisite plumage. This owl was taken just after one of those severe gales that swept over the east coast of our island during the latter part of the year 1863.—*W. W. Boulton; Beverley, January* 21, 1864.

Notes on the Redeyed Flycatcher.—As the redeyed flycatcher (*Muscicapa olivacea*), like former stragglers from the New World, may possibly be included in our Fauna, a slight description of one shot in Canada, during the spring of 1858, may perhaps prove interesting. Though two or three thousand miles is a long wandering flight for so delicate a short-winged bird, still it is difficult to account for its appearance in any other way, as it is not likely that those trapped near Derby had been caged, though Wilson says it is a fine songster, and a reference to his work will show that many of the particulars quoted by Mr. Brown from Mr. Gosse's 'Birds of Jamaica,' respecting the habits and song of the redeyed flycatcher, are noticed by him. Take, for instance, the following passages:—"This is a numerous species. * * * It has a loud, lively and energetic song, which it continues as it hunts among the thick foliage, sometimes for an hour, with little intermission." Mr. Gosse observes, "From this time every grove, I might almost say every tree, had its bird, uttering, with incessant iteration and untiring energy, from its umbrageous concealment, Sweet-John! &c." There is here a difference in style, but nothing more. It cannot be a numerous species in Canada, for I observed none during the latter part of the summer of 1857, but shot one on the 24th of May, 1858 (Zool. 6747). Not being able to identify it at first, I remarked in my note-book, "Resembles the garden warbler and wood wren," and it was not until closely examined that I ascertained the species. But for the slightly hooked upper mandible and bristles it might readily be mistaken for a warbler, to which it is so closely allied, the tarsus being uncommonly long, measuring more than 7-tenths of an inch; the toes, too, are very elongated, and so is the bill. Neither is the plumage characteristic of the family, being brighter than usual. Altogether it is a neat-looking, not to say elegant bird: a male, I believe. Length 5¾ inches. Bill about half-an-inch long; upper mandible of a dark horn-colour, slightly decurved, hooked and notched at the point; lower mandible straight, and of a light horn-colour. Crown of the head ash-brown, with a bluish tinge. A white band over the eye; an olive-brown band passes through it, and a dark brown one over it. Anterior part of back olive-brown, with a yellowish tinge. Posterior yellowish green. Upper tail-coverts light brown, tinged and margined with greenish yellow. Tail of a light glossy hair-brown; the feathers twelve in number, edged with yellowish green on the outer webs, and are all, except the two centre ones, broadly margined and slightly tipped with gray and yellowish white on the inner webs; the feathers, like those of Sylvia locustella, are beautifully and minutely barred with a darker shade of brown. The tail is almost even, though Wilson says it is "slightly forked," but the centre feathers are well nigh, if not quite, as long as the rest: the lateral feathers, though rounded on the outer web, are diagonally sloped or cut off on the inner web, giving the tail, when closed, a slightly forked appearance. The wing has eighteen quills of a darkish hair-brown, with black shafts. The primaries, except the two first, slightly tipped with grayish white, and they are all margined exteriorly with bright yellowish green, and with white on the inner webs. Second quill longest, the third next; and the second, third and fourth are cut out on the exterior web. The inner secondaries are of a glossy yellowish brown, with a rufous tinge; the outer secondaries like the primaries, but more broadly margined with yellowish green. The coverts like the quills. Cheek light grayish brown, with a greenish yellow tinge. Chin grayish white. Throat white. Breast white, shaded with gray and yellowish brown. Belly and vent white, the latter tinged with greenish yellow. The under tail-coverts similar, and very elongated. Sides white, shaded with greenish yellow. Under wing-coverts yellow. Tarsus and toes brown, with a bluish tinge. Claws light, curved and pointed.—*Henry Hadfield; Ventnor, Isle of Wight, March* 11, 1864.

Redwings singing in England.—This to me is something new: I have heard them chattering often with fieldfares, but I have never heard any birds sing much in flocks. Whether the bird Mr. Wharton mentions might not have been that soft, melodious bird, the wood lark, I do not know, but I agree with Mr. Newman that it was a pity the bird was not shot *in ipso facto.* It is rude to contradict such strong circumstantial evidence as that given by Mr. Matthews, who says that, except the nightingale, he does not know a more beautiful songster than the redwing; from its strong resemblance to the thrush, it ought to have a similarity of note. I shall do my best next winter to listen to the redwing; but already the redwings and fieldfares have nearly disappeared, the weather having become suddenly mild, and my present residence is near a populous town. Starlings, the most gregarious birds I know of, in all seasons, sing in flocks in their quiet, twittering, unassuming way, but that is all.—*H. W. Newman; Hillside, Cheltenham, March* 1, 1864.

Redwings singing in England.—I am quite of Mr. Newman's opinion (Zool. 8947) as to the singing of the redwing in this country. I feel quite sure that the thrush has been mistaken for it: I have had for years plenty of opportunities of hearing them had they sung. I do not call the twittering they make, when they are assembled together with fieldfares and starlings, singing. We have no end of redwings at Kingsbury every winter and spring: they are in the habit of roosting in the shrubberies of a neighbour, close to my house, and generally assemble, in fine weather, for a short time, in a double row of large elm trees bordering a lane in front of our house, and make a good deal of twittering: among them are mostly one or two resident song thrushes singing, and people seeing so many redwings might have fancied it was those birds that were singing.—*Frederick Bond; Kentish Town, March* 12, 1864.

Redwings singing in England.—As the subject does not seem to be entirely closed, perhaps I may be allowed to add my quota to the observations already published in the 'Zoologist,' regarding the singing of the redwing. Many years ago, being much engaged in procuring birds for the late Mr. T. C. Heysham, whose collection was sold in London some time since, while looking for migratory birds at the latest possible period prior to their leaving this country in spring, especially the siskin, brambling and fieldfare, I had many opportunities of meeting with large flocks of redwings, in company with the latter bird; and if the weather happened to be fine and sunny, these flocks, if alighted on the surrounding trees, seldom failed to join in what appeared to me a chorus of joy at the near approach of summer and an early return to their breeding haunts. Amongst such a large assemblage it would have been difficult to pick out the distinct song of a single individual, and trace it from beginning to end, and I never had an opportunity of hearing a single bird detached from all the rest; but, from what I could judge by listening to the whole flock, I should say Mr. Wharton's description of the song of the redwing is pretty correct, with the exception that I do not remember hearing that perpetual repetition of the same note which is so conspicuous in the song of the thrush. I could never distinctly ascertain how far the fieldfare participated in the general joy, except by hearing, at short intervals, the louder and somewhat harsh "chak, chak" they utter when flying.—*James Cooper; Museum, Warrington, March* 12, 1864.

Blackbird's Nest on the Ground.—The circumstance mentioned by Mr. Wharton (Zool. 8947) is by no means uncommon: near the ground or on the ground, at the bottom of an old hedge, on the edge of a hedge-bank, are all likely places for a blackbird to build, and also near the edge of a brook; but the curious variety of sites selected by the blackbird for its nest has puzzled me frequently. In my own shrubberies I have several times found, in the same bushy ever-green, a thrush's nest, and, within three or four feet, the nest of a blackbird, and when this was the case the thrush's nest has been invariably lower down and nearer the ground than that of its congener, the blackbird. Up to this date, although they have been numerous, I have not heard a blackbird sing this year: the thrushes, except on a dozen severe frosty days, have been in full song for three months.—*H. W. Newman; Hillside, Cheltenham, March* 3, 1864.

The Black Redstart in Cornwall.—You are aware that this species holds a more northern limit in its autumnal migration than most of the other warblers. Some are always to be observed during the winter months in the western counties: those that I have met with, in the proportion of ten out of twelve, are smoke-gray; in fact, I have considered that the black plumage is the summer livery, but I had one forwarded to me a few weeks since, killed on Marazion Green, in full black plumage. It may be a question whether many birds which undergo a change of plumage of this nature, when in a certain stage of life, do not, when very old, retain their more fully marked characteristics of plumage.—*Edward Hearle Rodd; Penzance, January* 20, 1864.

Chiffchaff wintering in Cornwall.—My garden has been honoured by an unusual visitor this winter: on New Year's Day I was surprised to see a chiffchaff actively flitting from bush to bush, and I continued to see it almost daily up to last Monday, when a severe frost set in, and I was much afraid it had perished, either from want of food or cold, but I was gratified by seeing it again yesterday in full activity. I watched it through a good binocular for nearly an hour, during which time it was frequently buffeted by other birds (house sparrows, chaffinch, dunnocks, gray wagtail, pied wagtail, and even the little wren), who appeared to look on it as being a stranger and having no right here at this season. In one instance the chiffchaff was the aggressor, making an attack on a titlark. I remember an instance of a chiffchaff being obtained here in January, but I cannot tell in what year.—*Stephen Clogg; Looe, February* 15, 1864.

Bramblings in the Chilterns.—About the beginning of this month my brother shot three bramblings from a flock which he saw in a field close to one of the wooded slopes of the above hills. Can any of the readers of the 'Zoologist' give an instance of their having occurred in this locality before?—*Richard Tyrer; Weston Turville, Wendover, February* 18, 1864.

Pine Grosbeak at Thruxton.—On Saturday, the 30th of January, my brother killed a fine male specimen of the pine grosbeak (*Loxia enucleator*), whilst preening its feathers on the branch of a fir tree. Upon skinning the bird, I found the crop filled with small seeds, some of which I have enclosed; they appear to me to be the seeds of Pinus sylvestris. I believe this is the first recorded instance of this bird's appearance in this part of Hampshire.—*Henry Reeks.*

Hawfinch near Salisbury.—About the first week in December, 1863, a number of these birds made their appearance at Britford, a village one mile and a half to the south-east of this city. I was informed by a person resident in the village that they arrived in parties of about twenty, and at intervals of from ten days to a fortnight: he showed me five specimens that he had shot, four males and one female. Altogether I have seen not less than twenty that have been killed in that locality, and this, I fear, does not include the total number that have been shot there. I much regret having to record such wholesale slaughter. Quite three-fourths of those which came under my notice were males. I took from the crop of one which I dissected several kernels; they were chiefly from the laurel-berry; a few much smaller appeared to me to be from the yew-berry, but I could not quite satisfy myself as to the identity of these smaller kernels. I have been in the habit of seeing individual specimens of the hawfinch killed in this neighbourhood during the winter for the last few years, but never recollect them to have been so numerous as they were this season.—*Henry Blackmore; Salisbury.*

Bohemian Waxwing in the West Riding of Yorkshire.—On the 24th of February I shot a fine specimen of the waxwing (*Bombycilla garrula*) near the well-known gorge called Gordale, six miles from Skipton. It was settled upon the top of a thorn-hedge, and, although I had to go a couple of miles before obtaining a gun, it had not moved far from the spot where it was first observed. I believe this is the first time of its occurrence within the district of Craven.—*H. Roundell; Coniston Hall, Bell Rush, Yorkshire.*

Bohemian Waxwing near Liscard.—A fine old male specimen of the Bohemian waxwing was brought to me alive on the 23rd instant, by my nephew, Mr. Thomas B. Robson, whose father's gardener caught it that day in their garden at Liscard Vale, New Brighton, under a riddle baited with the berries of the common dog-rose, in the usual manner adopted by boys for catching sparrows. He previously noticed it feeding on the fallen berries, and it allowed him to approach within five yards before it took wing, when it flew to the next garden, a few yards away, but returned and was caught within an hour. On dissection I found nothing whatever in its stomach, some hours having elapsed between the time of its capture and coming into my possession. I killed it because Bechstein, in his excellent work on cage-birds, says it is a lazy, useless, dirty, disgusting bird in captivity, when not well supplied with food eating its own excrement. No other bird was seen in company with it, but about two months since two were seen at Moreton, a village about five miles distant, one of which was shot, and is in the possession of Joseph Leyland, taxidermist, of Liverpool, and it is supposed by some that my nephew's specimen is the one that escaped the gun at Moreton.—*Nicholas Cooke; Spring View, Liscard, Cheshire, February* 26, 1864.

Cuckoo in Confinement.—On the 20th instant I observed a live specimen of the cuckoo (*Cuculus canorus*) in the possession of a person residing in this city, who informed me he had succeeded in rearing it (it being taken from a nest last year); it feeds on small pieces of raw beef, which it takes from his hands. This is the only instance I ever heard of its being kept in captivity in this country during the winter season.—*T. E. Gunn; Norwich, February* 22, 1864.

[For a similar instance, see Zool. 655.—*E. Newman.*]

Cuckoo in January.—The false alarms you received of the cuckoo appearing in January, or being heard in that month, ought, in my opinion, to be noticed by the Editor on the 1st of April, a very appropriate day for *canards* of all sorts; but the only excuse that can be made for such communications is that there are certain boys in the country who have good musical ears and voices, and thereby have deceived many others, in striking the note of the cuckoo, at from about two to four hundred yards distance, with the nearly proper key of "B flat," which key, with very little variation, is the one which all the cuckoos sing in at the time of their arrival. Towards the 28th of June, and after, the musical or singing part is altered to a coarse, hoarse, discordant scream. The Editor is quite right in demanding a sight of the bird, dead or alive.—*H. W. Newman; Hillside, Cheltenham, February* 26, 1864.

Great Spotted Woodpecker near Beverley.—This is decidedly a rare bird in our neighbourhood. I have never seen in all more than five or six specimens shot within a radius of twelve miles of Beverley. On the 1st of January a mature female specimen of the great spotted woodpecker (*Picus major*) was shot in the Burton Bushes, on Westwood, one of the common pastures adjoining the town of Beverley.—*W. W. Boulton; Beverley, March* 9, 1864.

Abundance of the Bittern in Norfolk.—As many as six specimens of the bittern, in good plumage, have been shot in Norfolk during the week.—*T. E. Gunn; Norwich, January* 16, 1864.—*In 'Corresponding Naturalists' Circular.'*

Note on the Occurrence in Great Britain of the American Wigeon and of the Red-winged Starling.—In the 'Zoologist' of this month (Zool. 8962) reference is made to the claim of the American wigeon to a place in the list of British birds, and to the specimen procured several years since in Leadenhall Market, by Mr. A. D. Bartlett. This specimen was purchased by me from Mr. Bartlett: it is a male in full plumage, and therefore there can be no mistake as to the species; and having been obtained long before the commencement of the present system of sending over wild fowl from America in the flesh, there can be no doubt of its having been killed either in the British Islands or on the Continent of Europe. I may add that I am interested in observing, in the same number of the 'Zoologist' (Zool. 8951), a notice of the recent occurrence in Sussex of another American bird, the so-called "redwinged starling," as my collection also contains the first-recorded British-killed specimen of this bird, which was obtained several years since at Barton Turf, in Norfolk.—*J. H. Gurney; March* 11, 1864.

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